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## 1.0 PURPOSE

To establish the essential requirements, define the role and function of an independent nuclear construction oversight review board (CORB) at VC Summer (VCS) Units 2 & 3.

## 2.0 SCOPE

### 2.1. CORB Scope

The CORB is an independent group (board), which provides senior level oversight for the VCS units 2 & 3 new nuclear construction project. The basis for the oversight is contained within this document, and as appropriate for this level, the Institute of Nuclear Power Operations (INPO) INPO 09-007, Principles for Excellence in Nuclear Construction; to include an emphasis on safety and the VCS safety culture, meeting expectations/commitments as it relates to quality, an unbiased/critical evaluation of construction/milestones, assess the competency of engineering; deliverables and its products. The adequacy of procurement and its processes (to include the effectiveness of supplier oversight), all leading up to and meeting the company's quality assurance and strategic focus/goals for operational readiness, start-up and commissioning as currently scheduled or planned.

The CORB reviews will include activities, reports, documents and field observations performed or provided by all on site project organizations, this may include the oversight activities performed by other independent groups (audit/assessments, INPO visits, etc.), specific to identified areas of concern. Additionally, conduct brief interviews of key personnel or groups to assess summary levels of competency/skill and alignment of commitments and our core values.

Last, the board provides VCS senior management with an assessment of project management processes and recommendations where improvements to project safety, quality, planning, and execution can be achieved.

The length of the review process will be determined and approved by the Chief Nuclear Officer (CNO) of VCS.

A. The CORB is responsible (but not limited to) for performing the following functions:

1. Advise the VCS senior management on matters related to safety and quality issues, project performance- all reviewed organizations (to include schedule performance), and assessed level of construction competencies.
2. Recommend to the VCS senior management any immediate corrective action(s) to improve safety and quality activities, transition strategies and processes, and project performance and processes.
3. Notify VCS senior management of any safety and/or quality significant items (risks). Present identified gaps in management of any/all processes, including any disagreement between the CORB and project organizations being reviewed.

## 2.2. CORB Charter

- A. The CORB advises the VCS senior management on the adequacy and implementation of the nuclear construction project activities; as stated in the scope. The board advises senior management on the implementation of and proficiency of the resources, processes and procedures related to project planning and execution. A review of recent Quality Assurance independent quality activities may be performed as well.
- B. The CORB has authority:
  - 1. To perform onsite inspections of project activities as necessary to acquire the information to prepare and complete the scope of the review.
  - 2. To access all records, documentation, and personnel necessary to perform its independent review.
  - 3. To access all Project Control Data and Budgetary Information (if/as required).
  - 4. To seek the advice and services of technical specialists or subject matter experts
  - 5. To seek services of outside advisors as required; through contractual arrangements per SAP-1315.
  - 6. To obtain support of its activities from appropriate construction management as requested by the CORB.
- C. In performing reviews, the CORB may use information from other organizations, review documents, technical evaluations from the construction oversight project organizations/personnel, and conduct detailed technical reviews, if appropriate and approved.

## 2.3. Review Frequency

The Process will be reviewed annually and documented in the Revision Log

## 3.0 PROCESS

### 3.1. Roles and Responsibilities (See Org. Chart, Figure 1)

#### 3.1.1. Chief Nuclear Officer, VCS (CNO)

- A. Appoints the Chair, may assist in assigning Alternate Chair and other members.
- B. Determines the frequency for CORB reviews.

- C. Reviews and further distributes the summary report(s) as appropriate.

### **3.1.2. Vice President New Nuclear Operations, VCS (VP, New Nuclear)**

- A. Coordinates CORB meetings.
- B. Provides an overview of the VCS' senior management's expectations for the CORB review/scope.
- C. Provides administrative support for the CORB as appropriate.
- D. Ensures issues and recommendations are entered into CR system (SAP-0999).
- E. Distributes the Summary Report(s) within new nuclear construction organization.
- F. Performs or assign designee the role of managing the contracts and approving invoices for the CORB members.

### **3.1.3. Direct Reports to the VP, New Nuclear**

Provide, on a timely basis, support to the CORB by providing as requested:

- A. Documents and other information.
- B. Briefings and tours.
- C. Access to plant personnel, facilities, and records.
- D. The appropriate personnel to support the reviews and assessments.

### **3.1.4. CORB Chairperson**

- A. Confers with CNO and VP of New Nuclear for developing the meeting agenda.
- B. Runs/conducts the meetings.
- C. Develops and approves the Summary Report(s).
- D. Meets with the CNO and other senior management, as appropriate.
- E. Meets directly with other major stakeholders or VCS board members (i.e., Santee Cooper), as appropriate.



## 3.2. Program Elements

### 3.2.1. CORB Structure and Functions

- A. The CORB consists of at most **XX** members including the Chairperson. The board is composed of individuals both internal and external to VCS. Liaison for the CORB is the VP of New Nuclear (or designee).
- B. The CORB members should possess the level of expected knowledge and/or skill to meet the intent of the review scope. Previous Construction Review Board, Commercial Nuclear along with Construction experience is preferred. The VP of New Nuclear and the CORB chairman selects the CORB members, no formal qualifications are delineated.
- C. CORB members will serve as required until their area of expertise is no longer necessary or an approved replacement is provided.
- D. The CORB will meet at least **XX** times per calendar year.
- E. The quorum for the CORB meetings will consist of at least **xx** members. This quorum will include the chairperson or acting chairperson, and at least **xx** other CORB members

### 3.3. CORB Review Topics

- A. The CORB reviews the following activities:
  - 1. Project organization, management processes, and reporting mechanisms to ensure compliance with nuclear construction excellence principles (INPO 09-007) and in conformance with VCS and construction project management processes and procedures. (summary review)
  - 2. Project Staff Performance related to implementing project management processes and reporting; assess skill and competencies of the PM's.
  - 3. Industrial Safety; recent issues, trends and forecast potential future problem areas.
  - 4. Safety Conscious Work Environment Program; feedback (interviews) for use of and reporting non-conforming/non-compliant work, materials, etc.
  - 5. Knowledge Management and Construction Excellence programs; review the recent skill assessment, improvement initiatives (can ref. specific NCR's).
  - 6. Risk Management plans; are they complete, used, reviewed and maintained.

7. Detailed scoping and estimating plans; durations/man-hours, accuracy.
  8. Project Charter and Project Management Plans; up to date and being utilized.
  9. The Schedule; overall fidelity and quality
- B. The CORB reviews the following Quality Assurance (QA) Program independent oversight activities:
1. Internal audit reports and related corrective actions; depth, trends and efficacy.
  2. Corrective action trends and effectiveness; may identify organizational/discipline weakness or competency issues.
  3. QA Audit schedules and oversight activities; timing, appropriate and meaningful.
  4. Vendor Audits and Vendor Shop Surveillances; adequate/intrusiveness.
  5. Results of selected assessments of QA audit programs; review findings and completed actions.
- C. Additionally, at the discretion of VCS Senior Management, the CORB may review the following subjects or programs:
1. The 10 CFR Part 73 Physical Security Program as defined for Construction, Deferred Status, and construction in conjunction with an operating site.
  2. Licensing submittals and Requests for Additional Information (RAIs) and Regulatory Framework Submittals for Construction sites.
  3. NRC violations, Occupational Safety and Health Administration (OSHA) violations, and any reports made under 10 CFR Part 21 and/or 10 CFR 50.55e. Any 10 CFR 50.72 reports and/or reportable security events caused by the construction organizations.
  4. Implementation of the Westinghouse Corrective Action Program (CAP), in accordance with VCS Corrective Action procedures.
  5. Other subjects as requested by the VCS; CEO, President/COO, CNO or VP of New Nuclear

**D. See attachment A; other recommended review areas/topics**

**3.4. CORB Reviews**

Chairperson, CORB

The Chairperson, CORB, has an independent reporting relationship to the CNO and VP New Nuclear Operations. The Chairperson advises the senior management on the processes and for evaluating these policies and programs for compliance with VCS project management processes and procedures for new nuclear construction (principles).

The Chairperson is responsible for:

- A. Assigning CORB members to specific functional areas or organizational activities.
- B. Ensuring that project and corporate safety and quality activities, programs, and events, including initial study, engineering, design control, construction, project controls, quality assurance, and oversight (all areas/disciplines), are assessed by assigning CORB members to perform the following in their assigned areas:
  1. Reviewing documents and reports.
  2. Briefings by staff and management.
  3. Reviewing industry reports.
  4. Observations, investigations, interviews, and discussions.
  5. Other appropriate means.
- C. Meetings; formally established.
  1. Scheduled Meetings; an approved written agenda will be prepared and provided prior to the meetings.
  2. Unscheduled Meetings, may be necessary, can be conducted via a conference call or video meeting; an advanced agenda will be provided.
  3. Initial Meeting Agenda;
    - The agenda along with the review scope information, documents, etc., shall be distributed a minimum of 14 days prior to the initial meeting.
    - Expectation of all board members is to comprehensively review the information provided.

- Meeting minutes will be recorded/documented
- 4. Daily meetings, while on site, will be conducted to discuss/review progress to date and present any follow up or additional issues.
- D. Ensuring that CORB members are actively involved in the CORB activities/meetings.
- E. Ensuring that the CORB's first order of business is focused on the safety and quality aspects of construction. Ensuring that the CORB discussions focus on the project management for construction excellence, timely transparency of issues and status to stakeholders, and accurate reporting.
- F. Ensuring the availability of appropriate review expertise. Use of consultants, experts, and subgroups is authorized with approval from the CNO and/or VP, New Nuclear.
- G. Ensuring that previously identified issues and recommendations are evaluated and/or considered when developing the meeting agenda.
- H. Conducting Entrance and Exit management briefings as appropriate.

### 3.5. CORB Summary Reports

#### Chairperson CORB

At the conclusion of onsite review activities the Chairperson collects reports from CORB members concerning any specific review activities they were assigned, to include issues or recommendations. The Chairperson prepares and approves a Summary Report of the meeting. The Summary Report should include the following:

- Executive summary
- General scope of review
- List of attending members and a statement that the quorum was met
- Conclusions made collectively by the Board
- Issues and recommendations

The Summary Report should be submitted to the CNO and VP of New Nuclear to support distribution within 30 days of the meeting

#### VP, New Nuclear

After review by the CNO, the VP of New Nuclear reviews and distributes the Summary

Report to the remaining senior management and site construction team within the VCS organization. The VP of New Nuclear (or designee) shall enter or all findings and recommendations into CAP/CR from the Summary Report.

#### Corrective Action Program

- A. Issues raised by the CORB should be entered in the CR/CAP (unless they have previously been identified and entered in the CR/CAP program) in accordance with the following guidelines:
  - 1. Significant issues or findings should be entered into CR/CAP immediately.
  - 2. Within two weeks of receipt of the official CORB Summary Report; the VP of New Nuclear, will be responsible for reviewing the list of issues and recommendations, and entering them into CR/CAP program (SAP-0999/CMMS).
  - 3. The Condition Reports written for issues identified by the CORB should be coded as "CORB" Identified.

## 4.0 RECORDS

### 4.1. QA Records

None

### 4.2. Non-QA Records

- A. CORB Summary Report
- B. Documentation generated to facilitate administration of normal daily CORB activities including meeting minutes.
- C. The Non-QA records are not permanent records.

## 5.0 DEFINITIONS

**Assessment** - An evaluation of the adequacy and effectiveness of quality programs, processes, ongoing tasks or activities, or management controls to identify opportunities for improvement, performance problems, or verify resolution of problems.

**Audit** - A documented activity performed in accordance with written procedures or checklists to verify, by examination and evaluation of objective evidence, that applicable elements of the Nuclear Quality Assurance Plan (NQAP) have been developed, documented, and effectively implemented in accordance with specified requirements. An audit should not be confused with assessment or inspection for the sole purpose of process control or product acceptance.

**Independent Review** - Review completed by personnel not having direct responsibility for the work function under review regardless of whether they operate as a part of an organizational unit or as individual staff members.

**Quality Assurance** - All those planned and systematic actions necessary to provide assurance that a structure, system, or component will perform satisfactorily in service. It applies to all activities associated with doing a job correctly as well as verifying and documenting the satisfactory completion of the work.

**Review** - A deliberately critical examination, including observation of plant operation, evaluation of audit results, procedures, certain contemplated actions, and after the fact investigations of abnormal conditions.

## 6.0 REFERENCES

INPO 09-007, July 2009, Principles for Excellence in Nuclear Construction

NEI 08-02, December 2008, Problem Identification and Resolution for New Nuclear Power Plants During Construction

NEI 09-12, February 2010, Guidelines for Establishing a Safety-Conscious Work Environment for New Nuclear Plant Construction Sites

PMI's Project Management Body of Knowledge (PMBOK Guide), fifth edition

## Appendix A

### Materials & Procurement

Review a recent/appropriate major procurement specification to PO (or similar); compliance and records quality

Current Inventory control, managing and monitoring programs of stored materials and hardware; level of effort

Sample review of Supplier oversight Audits, Surveillances and observations (to include random inspections); frequency, applied OE/LL's, findings and past ASL issues

Review recent WEC Supplier QSR reports and Supplier Observation program summary report; review level of effort/effectiveness

Place holder

### Project Controls

Review the "Quality" and integration of the schedule; true perspective of effort, accuracy of data

Is the schedule/application being utilized adequately for providing accurate information/data; schedule capacity

Metrics; review all used project metrics, for relevance

Place holder

### Construction/Implementation

Observe leadership and interface skills of the construction managers

Evidence of training, qualifications, knowledge and skills of the craft and first line supervisors for nuclear construction

Evidence of continuous improvement training, based on LL's, site events and OE's

Sample Review of applied technologies and work practices/processes being used; construction processes, equipment and applications should be reliable and modern (where appropriate)

Review recent readiness reviews, pre-job briefs and daily safety briefs; looking for an emphasis on safety and quality

Place holder

### Project Management



Communication of/and management of expectations, commitments, safety and quality; assess the alignment across all organizations and disciplines

Organizational interface/integration; is this effective, uniform, functional and without contention/conflict

Resource management (to include training and qualifications); summary review of the plan

Observe "Health" of the work environment; transparency, use of error prevention tools, general attitude, actively and openly use the processes to report deficiencies, rigorous adherence to all work documents, accountability, etc.

Productive work environments; review/observe work areas, locations, facilities, etc.

Project Risks; review the risk plan (summary), to include any identified enterprise risks- is this being reviewed updated and added into the planning processes

Place holder

#### Quality Assurance

Review Quality and Safety initiatives; reveals innovative thinking, performance improvements, encourages first time quality, reward programs

The combined safety and quality issues; review how trending to corrective actions are facilitated.

Review (sampling) of the self-assessments; verification of an effective process/program

Ensure that QA and QC activities are truly independent of the construction or management organizations

Sampling review of quality records; compliance, turnover and records management

Place holder

#### Engineering

Management of the design; overall ability to maintain control of the design configuration

Quality of the design documents; a sample review, able to translate information/data or requirements into a quality work or inspection document (one time)

Access to design information; easily or readily accessible, but protected from erroneous changes

Design change process review; robust, prompt, comprehensive and followed

Place holder

#### Licensing & Operations

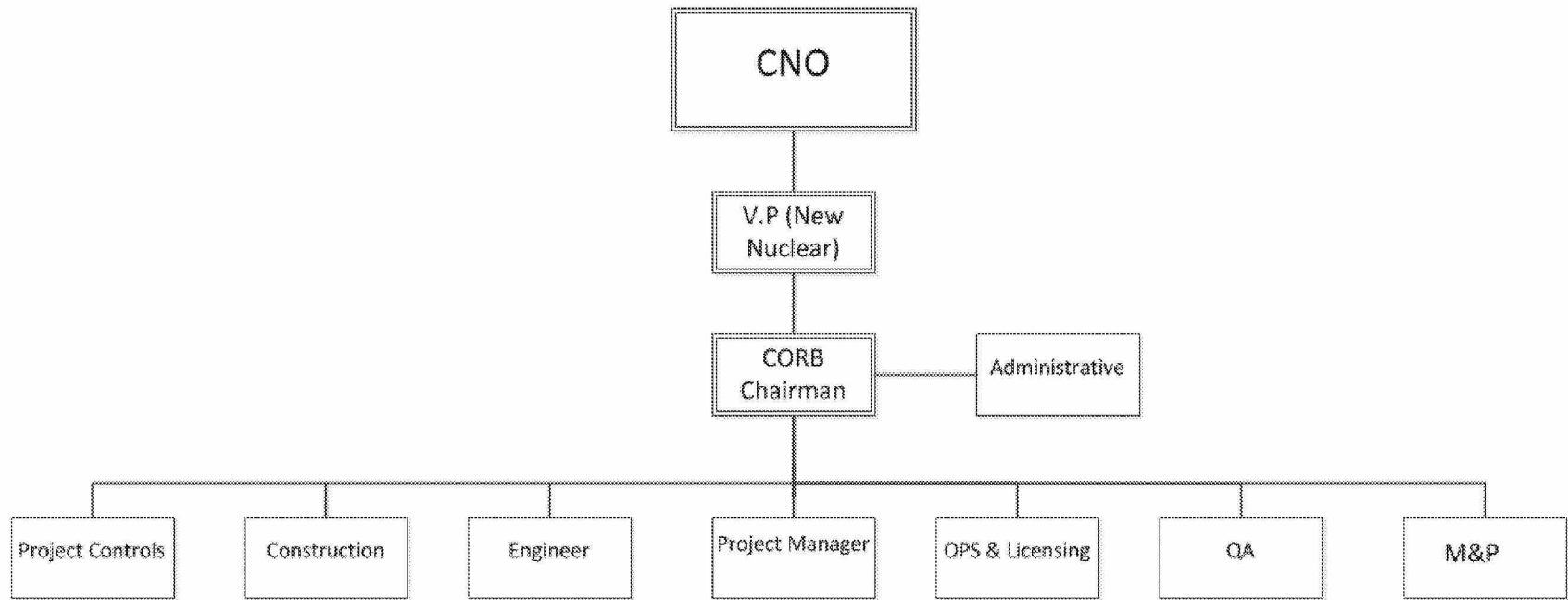
Review the Transition Plan; does this align with plant start up goals/schedule

Place holder





Figure 1



## Message

**From:** McCormack, Greg [/O=EXCHORG/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GMCCORMA.SANTEECOOPER.COM]  
**Sent:** 7/7/2017 9:25:32 AM  
**To:** Armfield, Jeff [/o=EXCHORG/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=jdarmfie.santeecooper.com]; Crosby, Michael [/o=EXCHORG/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=mrcrosby.santeecooper.com]; Cherry, Marion [/o=EXCHORG/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=wmcherry.santeecooper.com]; Williams, Jason [/o=EXCHORG/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=jwillia.santeecooper.com]; Carter, Lonnie [/o=EXCHORG/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=Incarter.santeecooper.com]; Baxley, Mike [/o=EXCHORG/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=Baxley, Johndba]  
**Subject:** Fwd: [EXTERNAL SENDER] FW: ETC Presentation 2017 07 07  
**Attachments:** ETC Presentation 2017 07 07.pdf; ATT00001.htm

Soft copy if you'd like it.

Thanks,  
 Greg McCormack  
 via mobile

Begin forwarded message:

**From:** "YOUNG, KYLE MATTHEW" <[KYLE.YOUNG@scana.com](mailto:KYLE.YOUNG@scana.com)>  
**To:** "Dembla, Rahul" <[RAHUL.DEMBLA@santeecooper.com](mailto:RAHUL.DEMBLA@santeecooper.com)>  
**Cc:** "McCormack, Greg" <[greg.mccormack@santeecooper.com](mailto:greg.mccormack@santeecooper.com)>  
**Subject:** [EXTERNAL SENDER] FW: ETC Presentation 2017 07 07

WARNING: This e-mail is from an external sender. Use caution when opening attachments and clicking links.

**From:** YOUNG, KYLE MATTHEW  
**Sent:** Friday, July 7, 2017 8:53 AM  
**To:** TORRES, ALAN D (<[ATORRES@scana.com](mailto:ATORRES@scana.com)> <[ATORRES@scana.com](mailto:ATORRES@scana.com)>); ADDISON, JIMMY E (<[JADDISON@scana.com](mailto:JADDISON@scana.com)> <[JADDISON@scana.com](mailto:JADDISON@scana.com)>)  
**Subject:** ETC Presentation 2017 07 07

Presentation for today

\*\*\*\*\*

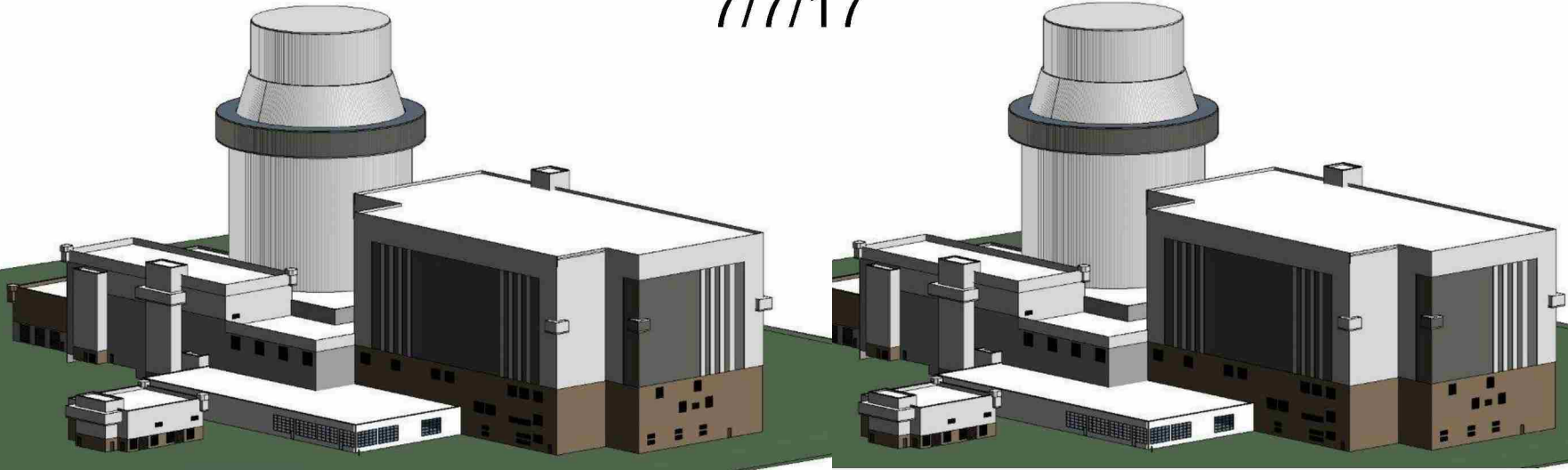
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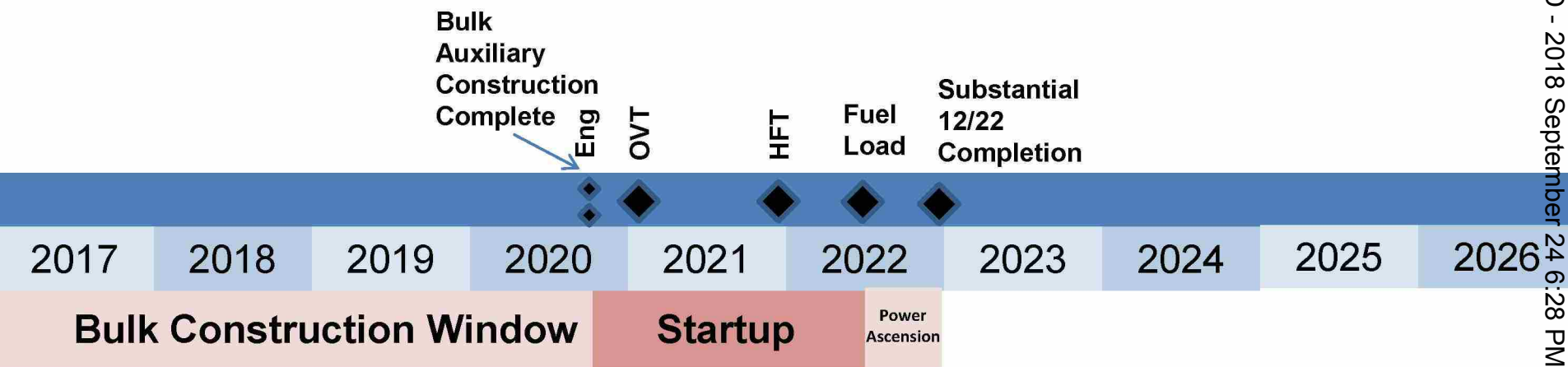
# V.C. Summer Units 2 & 3 ETC Discussion 7/7/17



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# Schedule for ETC Cost Pricing

## VCS Unit 2 – ETC – Alternating 4 – 10's



# Schedule for ETC Cost Pricing

- Initial Pricing Schedule had U2 Substantial Completion of August 2023
  - Bulk Construction Window ended August 2021
  - Bulk Construction utilized Monthly Commodity Installation Rates from Historical VCS and Historical Industry working 5-Day/Week Schedules
- Current Pricing Schedule has U2 Substantial Completion of December 2022
  - Bulk Construction Window ends November 2020
  - Bulk Construction now uses Monthly Commodity Installation Rates from Historical VCS and Historical Industry normalized to a 7-Day/Week Schedule
    - Installation Rates were normalized by a 40% (or less) increase due to working 2 extra days a week
  - No change in Startup Critical Path (18 mo.) or Power Ascension (6 mo.)



# Schedule for ETC Cost Pricing

## Average Installation Rate Comparison

COMMODITY	UOM	Historical Industry Average of 5-Day a Week Plants x 1.40	Riverbend + Vogtle U1 7- Day a Week	Initial ETC Pricing Schedule (U2 Aug 2023)	Current ETC Pricing Schedule (U2 Dec 2022)	% Change from Initial ETC Pricing Schedule
Concrete + Grout (CY)	CY/MO	7,653	9,234	1,221	1,544	26%
Piping Small Bore (LF)	LF/MO	6,744	5,622	2,399	3,199	33%
Piping Large Bore (LF)	LF/MO	6,756	9,165	2,339	2,969	27%
LB Pipe Supports (EA)	EA/MO	408	768	180	222	23%
Conduit (LF)	LF/MO	19,401	21,385	13,555	16,379	21%
Cable Tray (LF)	LF/MO	4,733	3,661	1,323	1,744	32%
Cable + Grounding (LF)	LF/MO	228,614	285,054	102,480	119,560	17%
Terminations (EA)	EA/MO	9,513	14,897	8,659	9,237	7%

Concrete is based off Historical Performance at VCS; Aug 2023 Schedule assumed 1545 CY/MO

## ETC for V.C. Summer AP1000 Project

		1 UNIT ETC (6/23/17 DRAFT PRESENTATION)	1 UNIT ETC (7/7/17 DRAFT PRESENTATION)	VARIANCE BETWEEN PRESENTATIONS
		\$Mils	\$Mils	\$Mils
<b>Non-Construction</b>	• Procurement - Equipment & Bulk/Raw Materials	\$ 354	\$ 379	\$ 25
	• Engineering (Labor)	\$ 251	\$ 232	\$ (19)
	• Instrumentation & Controls	\$ 93	\$ 85	\$ (8)
	• Commissioning	\$ 155	\$ 130	\$ (24)
	• Procurement-related (Labor)	\$ 119	\$ 103	\$ (15)
	• Project Management	\$ 242	\$ 226	\$ (16)
	• Quality Assurance, Quality Control, ECP	\$ 152	\$ 131	\$ (21)
	• HR/Access Control/FFD	\$ 29	\$ 13	\$ (16)
	• IT Costs	\$ 86	\$ 82	\$ (4)
	• Finance/Accounting	\$ 19	\$ 17	\$ (1)
	• Licensing	\$ 46	\$ 43	\$ (4)
	Subtotal	\$ 1,546	\$ 1,442	\$ (104)
<b>Construction</b>	• Construction - Fluor (Direct Craft, Indirect Craft, Field Non-	\$ 1,303	\$ 1,266	\$ (37)
	• Construction Direct & Indirect Subcontracts	\$ 777	\$ 708	\$ (70)
	• Construction - Distributables, Equipment/Other	\$ 377	\$ 292	\$ (85)
	Subtotal	\$ 2,457	\$ 2,266	\$ (191)
<b>Other Project-</b>	• Escalation	\$ 254	\$ 201	\$ (53)
	• Risk Register	\$ 337	\$ 279	\$ (58)
	• Warranty	\$ 31	\$ 31	\$ -
	• Q2-2017 True-Up		\$ 50	\$ 50
	• SCE&G Operational Readiness Contractor Displacement	\$ -	\$ (81)	\$ (81)
	Subtotal	\$ 622	\$ 480	\$ (142)
Demobiliation Costs		\$ -	\$ -	\$ -
<b>Total "Traditional EPC" Costs</b>		\$ 4,625	\$ 4,188	\$ (437)
<b>Owner's Cost</b>	Base Owner's Cost (Includes Escalation)	\$ 1,489	\$ 1,267	\$ (222)
	<b>Total "Traditional Owner's" Cost</b>	\$ 1,489	\$ 1,267	\$ (222)
<b>Total Project ETC Costs</b>		\$ 6,114	\$ 5,455	\$ (659)

These Costs are DRAFT and contain assumptions that need to be validated.





## Complete Construction of Unit 2, Defer Unit 3 for 2 Years

Estimate as of July 7, 2017 (\$000,000)	100%	SCE&G %	Santee %
Total Actual Spent	\$ 7,556	\$ 4,169	\$ 3,387
<b>Estimated Costs to Complete</b>			
Estimated "EPC" Costs to Complete	\$ 3,987	\$ 2,193	\$ 1,794
Estimated Escalation to Complete	\$ 201	\$ 111	\$ 90
Estimated "Owner's" Costs to Complete (w/ Esc)	\$ 1,267	\$ 697	\$ 570
<b>Total Estimated Costs to Complete</b>	<b>\$ 5,455</b>	<b>\$ 3,000</b>	<b>\$ 2,455</b>
<b>Total EAC</b>	<b>\$ 13,011</b>	<b>\$ 7,169</b>	<b>\$ 5,842</b>
<b>Parental Guarantee Net of Liens "Flow through"</b>	<b>\$ (2,000)</b>	<b>\$ (1,100)</b>	<b>\$ (900)</b>
<b>Total Transmission Costs</b>	<b>\$ 679</b>	<b>\$ 373</b>	<b>\$ 306</b>
<b>Total AFUDC</b>	<b>\$ 612</b>	<b>\$ 337</b>	<b>\$ 276</b>
<b>Total Project Costs</b>	<b>\$ 12,302</b>	<b>\$ 6,780</b>	<b>\$ 5,523</b>
<b>Incremental Cost to Defer Unit 3 *</b>	<b>\$ 310</b>	<b>\$ 171</b>	<b>\$ 140</b>
<b>Total Project Costs to Finish Unit 2, Defer Unit 3</b>	<b>\$ 12,612</b>	<b>\$ 6,950</b>	<b>\$ 5,662</b>
<b>Cost Approved in Order 2016-794</b>	<b>\$ (13,910)</b>	<b>\$ (7,658)</b>	<b>\$ (6,252)</b>
<b>Estimated Cost Increase</b>	<b>\$ (1,297)</b>	<b>\$ (708)</b>	<b>\$ (589)</b>
<b>Delta Breakdown</b>			
Total Construction Cost Increase	\$ 75	\$ 41	\$ 34
Cost to Defer Unit 3	\$ 310	\$ 171	\$ 140
Additional Owner's Costs	\$ 295	\$ 168	\$ 127
Additional Transmission	\$ (5)	\$ (3)	\$ (2)
Additional AFUDC	\$ 28	\$ 15	\$ 13
Toshiba Guarantee	\$ (2,000)	\$ (1,100)	\$ (900)
<b>Total Estimated Cost Increase</b>	<b>\$ (1,298)</b>	<b>\$ (707)</b>	<b>\$ (589)</b>

\* Fixed cost of deferral which covers a 4 month ramp-down and 6 month ramp-up period is estimated to be \$162.6M. Additional costs to maintain the site exclusive of the ramp-down and ramp-up periods is estimated at \$10.5M per month, or \$127M per year.

These Costs are DRAFT and contain assumptions that need to be validated.



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# Complete Construction of Unit 2, Abandon Unit 3

These Costs are DRAFT and contain assumptions that need to be validated.



Estimate as of July 7, 2017 (\$000,000)	100%	SCE&G %	Santee %
Total Actual Spent	\$ 7,556	\$ 4,169	\$ 3,387
Estimated Costs to Complete			
Estimated "EPC" Costs to Complete	\$ 3,987	\$ 2,193	\$ 1,794
Estimated Escalation to Complete	\$ 201	\$ 111	\$ 90
Estimated "Owner's" Costs to Complete (w/ Esc)	\$ 1,267	\$ 697	\$ 570
Total Estimated Costs to Complete	\$ 5,455	\$ 3,000	\$ 2,455
Total EAC	\$ 13,011	\$ 7,169	\$ 5,842
Parental Guarantee Net of Liens "Flow through"	\$ (2,000)	\$ (1,100)	\$ (900)
Total Transmission Costs	\$ 679	\$ 373	\$ 306
Total AFUDC	\$ 612	\$ 337	\$ 276
Total Project Costs	\$ 12,302	\$ 6,780	\$ 5,523
Cost to Abandon Unit 3	\$ 2	\$ 1	\$ 1
Total Project Costs to Finish Unit 2, Abandon Unit 3	\$ 12,304	\$ 6,781	\$ 5,524
Cost Approved in Order 2016-794	\$ (13,910)	\$ (7,658)	\$ (6,252)
Estimated Cost Increase	\$ (1,605)	\$ (878)	\$ (728)
Delta Breakdown			
Total Construction Cost Increase	\$ 75	\$ 41	\$ 34
Cost to Abandon Unit 3	\$ 2	\$ 1	\$ 1
Additional Owner's Costs	\$ 295	\$ 168	\$ 127
Additional Transmission	\$ (5)	\$ (3)	\$ (2)
Additional AFUDC	\$ 28	\$ 15	\$ 13
Toshiba Guarantee	\$ (2,000)	\$ (1,100)	\$ (900)
Total Estimated Cost Increase	\$ (1,606)	\$ (878)	\$ (728)

# Schedule Analysis

## Hotel Load Impact

3 Months	\$168M
7 Months	\$393M
10 Months	\$561M

These Costs are DRAFT and contain assumptions that need to be validated.

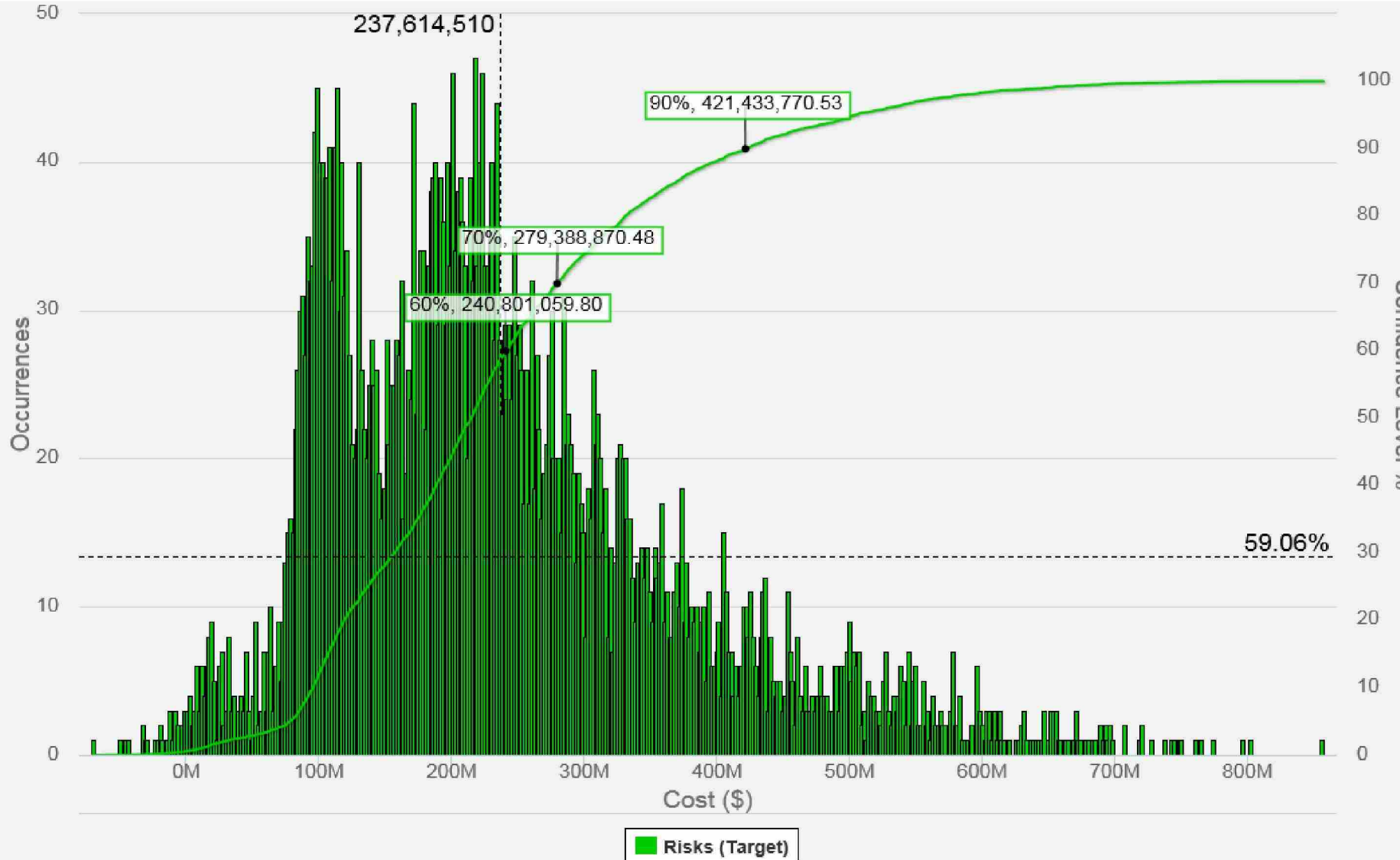
ETC for V.C. Summer AP1000 Project		1 UNIT ETC HOTEL LOAD
		\$Mils
<b>Non-Construction</b>	• Procurement - Equipment & Bulk/Raw Materials	\$ -
	• Engineering (Labor)	\$ 3.25
	• Instrumentation & Controls	\$ 2.02
	• Commissioning	\$ 0.61
	• Procurement-related (Labor)	\$ 0.84
	• Project Management	\$ 4.74
	• Quality Assurance, Quality Control, ECP	\$ 2.39
	• HR/Access Control/FFD	\$ 0.26
	• IT Costs	\$ 0.73
	• Finance/Accounting	\$ 0.26
	• Licensing	\$ 0.53
	Subtotal	\$ 15.64
<b>Construction</b>	• Construction - Fluor (Direct Craft, Indirect Craft, Field Non-	\$ 20.24
	• Construction Direct & Indirect Subcontracts	\$ 0.50
	• Construction - Distributables, Equipment/Other	\$ 7.27
Subtotal		\$ 28.01
<b>Other Project-</b>	• Escalation	\$ 1.93
	• Risk Register	\$ -
	• Warranty	\$ -
	• Q2-2017 True-Up	\$ -
	• SCE&G Operational Readiness Contractor Displacement	\$ (3.36)
Subtotal		\$ (1.43)
Demobiliation Costs		\$ -
<b>Total "Traditional EPC" Costs</b>		\$ 42.22
<b>Owner's Cost</b>	Base Owner's Cost (Includes Escalation)	\$ 13.89
	<b>Total "Traditional Owner's" Cost</b>	\$ 13.89
<b>Total Project ETC Costs</b>		\$ 56.12

# Owner's Labor Optimization

- Group challenge meetings with all phases represented (6/27 & 6/28)
- Goal was to optimize the use of SCE&G labor resources, displacing contractors, when appropriate.
- 260 (59%) Operational Readiness employees will be transferred to Construction for approximately 2 years prior to Commissioning.
- Total Savings, including saved per diem, is approximately \$369M
- Savings in Project Management, Engineering and Commissioning had already been credited (\$288M), resulting in an additional decrease of \$81M



# Cost Risk—Unit 2 only



Proprietary & Confidential

Confidential Treatment Requested by Santee Cooper

ORS\_00015539

The WEC design has been a significant underlying problem that has prevented the Project from being successful to date.

Incomplete Westinghouse design work has resulted in the following major issues:

1. Inability to meet any schedule published ... the Consortium's schedule credibility is ZERO.
2. Inefficient Site Execution ... poor productivity (coupled with mismanaged labor ratios) have significantly increased Target costs and costs are now not in alignment with the base EPC agreement or the EAC (published Aug 2014).

**Original EPC (May 2008)      Apr 2016 / Jan 2019**

#### Lake Charles

Poor performance from onset was masked by the following issues

- COL delay
- Basemat rebar issues
- **E&DCRs were a major issue as well ... but had not come into focus at this time**
  - **To this point ... CB&I is now working on a \$300M claim against Westinghouse for inability to fabricate / deliver submodules on a schedule due to the volume of design changes.**

**EPC Settlement (Jul 2012)      Mar 2017 / May 2018**

Fabrication shops involved at the time:

- Lake Charles ... known poor performer
  - **E&DCRs continued to impede progress at Lake Charles**
- Newport News Industries (NNI)
  - Owner assumption was that NNI supported the dates above. Owners were not aware of any required expediting at this time.
  - **E&DCRs were an issue for NNI from the onset.**

### **1<sup>st</sup> Module Delay (Jun 2013)      Dec 2017 – Mar 2018 / Dec 2018 – Mar 2019**

At Presidents Meeting (Dec 2013) - Jeff Benjamin announced the need for a Rebaselined Schedule. A definition for “engineering complete” had been established at Westinghouse and engineering was to be completed as follows:

- Civil / Structural – Jan 2014
- Piping – Feb 2014
- Mechanical -
- Electrical -
- I&C -
- Simulator -

Most recently the Consortium committed to “the issuance of all Rev 0 drawings” (possibly a new definition for engineering complete ??) by April 30, 2015. As it turns out ... design includes Nuclear Island only with exclusions for ...

### **ReBaselined Schedule (Aug 2014)      Dec 2018 - Jun 2019 / Dec 2019 - Jun 2020**

- Lake Charles was de-scoped in 2014. Four new vendors were selected as follows:
  - OIW – Unit 3 CA20 - 13 of the 72 submodules
  - SMCI – both Units 2 & 3 CA03 submodules (17 submodules per Unit)
  - Toshiba – Unit 3 CA01 - approximately ½ of the 47 submodules
  - IHI – Unit 3 CA01 - approximately ½ of the 47 submodules
  - Lake Charles – Unit 3 CA20 - 59 of the 72 submodules would continue to be fabricated in LC

## Rebaselined Schedule (Jan 2015)      Jun 2019 / Jun 2020

In Jan 2015 ... the Consortium acknowledged that the Dec 2018 / Dec 2019 dates were not achievable. The Owners learned that the Jun 2019 / Jun 2020 dates would require expediting NNI shield building panels as follows:

- Unit 2 – must be expedited 3 months
- Unit 3 – must be expedited 5 months

**As of May 2015 ... E&DCRs continue to impede schedule performance at all submodule fabrication sites ... as well as on site with vertical construction of the Nuclear Islands.**

- **Lake Charles – Unit 3 CA20 – 59 of 72 submodules being fabricated**
  - “x” submodules past due
  - LC being considered for CA03 fabrication due to non-performance of SMCI
- **OIW – Unit 3 CA20 - 13 of 72 submodules being fabricated**
  - All 13 submodules now past due
- **SMCI – Units 2 & 3 CA03 – 34 submodules being fabricated (17 per Unit)**
  - “x” submodules past due
- **Toshiba – Unit 3 CA01 -**
  - “x” submodules past due
- **IHI – Unit 3 CA01 -**
  - “x” submodules past due
  - Over 900 E&DRCs received since work began
    - Over 100 E&DCRs have impacted scheduled deliveries
- **NNI – shield building panels (V2 & V3)**
  - \$20M CO – Issued to CB&I for design changes
    - CB&I paid \$10M in good faith to keep work going
  - CB&I / WEC – currently in arbitration over dispute
    - CB&I – projected to hit hard dollar ceiling Jan 2016 ... at which time work may stop
  - CB&I / NNI – currently re-negotiating a T&M contract



### **CEO Talking Points – April 28, 2015**

#### **□ Schedule Concerns**

- Consortium has no credibility for developing a realistic schedule
  - In the Aug 2014 Rebaselined Schedule, the consortium stated that Substantial Completion Dates (SCDs) of Dec 2018 and Dec 2019 were achievable for Units 2 and 3, respectively.
  - In Jan 2015, the consortium acknowledged that the Dec 2018/Dec 2019 SCDs were not achievable, but that Jun 2019 and Jun 2020 SCDs for Units 2 and 3 were achievable. However, even meeting the Jun 2019/Jun 2020 dates would require expediting a number of shield building wall panels from NNI three months for Unit 2 and five months for Unit 3.

- In Mar 2015, the consortium communicated that the Unit 2 SCD had slipped 52 days to Aug 10, 2019.
- As of Apr 20, 2015 Unit 2 substantial completion had slipped 70 days past the Jun 2019 commitment.
- The consortium continues to fail on executing critical path work.
  - Two self-imposed stop work actions were required because of lack of work control in the containment vessel.
  - Currently 17 concrete placements are late – not all due to design changes.
  - Layer 3 concrete (baseline date Mar 18) is currently 5/5
- Incomplete design and late design changes continue to significantly impact construction execution and schedule.
  - A change to rebar configuration for the CA-01 to CA-05 interface has impacted layers 3/4/5 concrete placement in containment.
  - A late change communicated to site Mar 25 has impacted layer 5 rebar and embedments – a potential 12-week delay.
  - Late identification of the use of the incorrect code year for welded rebar couplers resulted in a purposed violation at plant Vogtle and stopped all current concrete pours at VCS. The code year used to design the coupler weld is different than the code year referenced in the Licensee basis document.
  - Design changes continue to impact module vendor schedules – every vendor has failed to meet schedule. Numerous E&DCRs and N&Ds remain open.
- Craft productivity continues to be an issue
  - The cumulative direct craft productivity factor (PF) has gotten worse every month for the past two years.
  - In the Aug 29 EAC Meeting, the Owner was led to believe that the consortium expected to improve productivity as additional work fronts opened up over the next 6-month period (i.e., to ramp the PF down closer to the 1.15 used as the EAC basis). As opposed to

ramping down from the 1.47 last August, the cumulative PF has gotten worse every single month since August and is now 1.58.

- As a result, the consortium has and continues to struggle with completion of direct craft work.
    - In the last 2 years, less than 8% of direct work has been completed.
    - And despite the negative trend in craft productivity, in the next 4-1/2 years, 84% will need to be completed to meet the Jun 2019/Jun 2020 SCDs
  - Now, with the uncertainty with respect to fabrication of shield building components, the Owner has no confidence in the consortium's ability to complete Unit 3 by the end of 2020 and suspects that production tax credits are in jeopardy for that unit.
  - The continued failure to meet schedule (Unit 2 now at least 39 months late, and Unit 3 at least 18 months late, relative to the original BLRA dates, with significant mitigation required) has severely impacted credibility and has placed ongoing regulatory and financial support in jeopardy.
- **Cost Concerns**
- Consortium has no credibility for developing a realistic cost estimate
    - Target Cost (Since receipt of EAC Aug 29, 2014)
      - Direct Craft Productivity Factor has averaged 2.23 vs. the EAC basis of 1.15 resulting in **\$16.6 million** in additional costs to the Owner.
      - The consortium has indicated and it is apparent that unit rates affecting earned work were bad estimates; therefore, we believe the EAC is significantly understated.
      - Indirect to Direct Craft Labor Ratio has averaged 1.34 vs. the EAC basis of 0.39 resulting in **\$31.4 million** in additional costs to the Owner.
      - Field Non-manual to Direct Craft Labor Ratio has averaged 1.29 vs. the EAC basis of 0.53 resulting in **\$48.1 million** in additional costs to the Owner.

- The total additional costs over the EAC are **\$96.1 million** in the seven months since we received the EAC.
  - Not only are PF, IC/DC Ratio, and FNM/DC Ratio significantly above the EAC basis, all three are trending higher since receipt of the EAC.
- Production Tax Credits are at risk.
  - Financing Costs are at risk for increasing.
  - BLRA rate recovery is at risk.
  - The Consortium's inability to negotiate reasonable terms with Southern Company for a cost sharing change order for Cyber Security potentially adds a significant cost increase to the proposed change order for SCANA and presents a potential schedule risk for the project.

## CEO Meeting Talking Points – May 12, 2015

The WEC design has been a significant underlying problem that has prevented the Project from being successful to date.

Incomplete Westinghouse design work has resulted in the following major issues:

1. Inability to meet any schedule published ... the Consortium's schedule credibility is ZERO.
2. Inefficient Site Execution ... poor productivity coupled with mismanaged labor ratios have significantly increased Target Costs and costs are now not aligned with the base EPC Agreement or the EAC (published Aug 2014).

### Original EPC (May 2008)

Apr 2016 / Jan 2019




- Lake Charles
  - Poor performance from onset was masked by the following issues
    - COL delay
    - Basemat rebar issues
    - **E&DCRs were a major issue as well ... but had not come into focus at this time**
      - **To this point ... CB&I is currently working on a \$300M claim against Westinghouse for inability to fabricate / deliver submodules on a schedule due to the volume of design changes.**

### EPC Settlement (Jul 2012)

Mar 2017 / May 2018

- Fabrication shops involved at the time:
  - Lake Charles ... known poor performer
    - **E&DCRs continued to impede progress at Lake Charles**
  - Newport News Industries (NNI)
    - Owners' understanding was that NNI supported SC dates above and no expediting was required at the time
    - **E&DCRs were an issue for NNI from the onset and eventually led to a change order**

CEO Meeting Talking Points – May 12, 2015**Module Delay (Jun 2013)****Dec 2017 - Mar 2018 / Dec 2018 – Mar 2019**

- Presidents' Meeting (Dec 2013) – Jeff Benjamin announced the need for a Rebaselined Schedule. A definition for “engineering complete” had been established at Westinghouse and engineering was to be completed as follows:
  - Civil / Structural Jan 2014
  - Piping Feb 2014
  - Mechanical  2014
  - Electrical  2014
  - I&C  2014
  - Simulator  2014
- **Most recently the Consortium committed to “the issuance of all Rev 0 drawings” (possibly a new definition for engineering complete ??) by April 30, 2015. As it turns out ... design includes Nuclear Island only with exclusions for ...**

**Rebaselined Sched (Aug 2014)****Dec 2018 - Jun 2019 / Dec 2019 – Jun 2020**

- Lake Charles was de-scoped in 2014. Four new vendors were selected as follows:
  - Oregon Iron Works (OIW) – VCS 3 CA20– 13 of 72 submodules
  - SMCI – VCS 2 and 3 CA03 – 17 submodules per unit
  - Toshiba – VCS 3 CA01 – approximately half of the 47 submodules
  - IHI – VCS 3 CA01 – approximately half of the 47 submodules
  - Lake Charles – VCS 3 CA20 – 59 of 72 submodules remained at LC

**Rebaselined Sched (Jan 2015)****Jun 2019 / Jun 2020**



## CEO Meeting Talking Points – May 12, 2015

- In Jan 2015 ... the Consortium acknowledged that the Dec 2018 / Dec 2019 dates were not achievable. The Owners learned that the Jun 2019 / Jun 2020 dates would require expediting shield building panels as follows:
  - VCS 2 – 3 months
  - VCS 3 – 5 months
- As of May 2015 ... E&DCRs continue to impede schedule performance at all submodule fabrication sites ... as well as on site with vertical construction on the Nuclear Islands.
  - Lake Charles – VCS 3 CA20 – 59 of 72 submodules being fabricated
    - [REDACTED] submodules late
    - LC being considered for CA03 fabrication due to non-performance at SMCI
  - OIW – VCS 3 CA20 – 13 of 72 submodules being fabricated
    - [REDACTED] submodules late
  - SMCI – VCS 2 and 3 CA03 – 34 submodules being fabricated (17 per unit)
    - [REDACTED] submodules late
  - Toshiba – VCS 3 CA01 – [REDACTED] of 47 submodules being fabricated
    - [REDACTED] submodules late
  - IHI – VCS 3 CA01 – [REDACTED] of 47 submodules being fabricated
    - [REDACTED] submodules late
    - **Over 900 E&DCRs received since work began**
      - **Over 100 have impacted schedule**
  - NNI – VCS 2 and 3 Shield Building Panels (167 per unit)
    - **\$20M CO – Issued to CB&I for design changes**
      - **CB&I paid \$10M in good faith to keep work going**
    - **CB&I / WEC – currently in arbitration over dispute**

CEO Meeting Talking Points – May 12, 2015

- CB&I projected to hit hard dollar ceiling Jan 2016 ... at which time work may stop
- CB&I / NNI – currently renegotiating contract – NNI will not finish work unless awarded a T&M contract.



## CEO Meeting Talking Points – May 14, 2015

**Completion of the WEC AP1000 design** has been a significant project challenge affecting procurement and construction. The **incomplete design** of the AP1000 has resulted in 3 - 4 years of inefficient (and very poor) site execution. As a result, the Consortium has not been able to achieve success on any schedule or cost estimate published to date.

These issues have created a significant question of Consortium credibility regarding successful delivery of the project. To move forward, the Owners plan to pursue a 3<sup>rd</sup> party evaluation to clearly define the issues impeding progress and to determine mitigative strategies necessary to ensure the project's success, and in turn, the success of all parties.

Following are talking points that substantiate incomplete design as the primary project impediment to date along with the projected cumulative impact on cost:

### SUBSTANTIATION OF INCOMPLETE DESIGN

#### **Original EPC (May 2008)**

**GSCDs: Apr 2016 / Jan 2019**

- Lake Charles
  - Poor performance from onset was masked by the following issues
    - COL delay
    - Basemat rebar issues
    - **E&DCRs, a major issue ... but had not come into focus during this time period**

#### **EPC Settlement (Jul 2012)**

**GSCDs: Mar 2017 / May 2018**

- Fabrication shops involved at the time:
  - Lake Charles ... continued struggles with fabrication and delivery of submodules
    - **E&DCRs continued to impede progress at Lake Charles.**
      - **The following is one example with CA20; however, similar statements could be made regarding any of the Nuclear Island structural modules. Note - the CA20**

CEO Meeting Talking Points – May 14, 2015

scheduled hook date was Jan 2013 based on the July 2012 Settlement schedule.

- CA20 (Unit 2) was set on the Nuclear Island May 9, 2014. At the time, CA20 had 308 open E&DCRs against it. As of this note, CA20 still has **XXX** open E&DCRs and as a result concrete has not been placed inside the walls (over 1 year later).
- **CB&I (LC) is currently working on a \$300M claim against Westinghouse for its inability to fabricate / deliver submodules on any prescribed schedule due to the volume of design changes.**
- Newport News Industries (NNI)
  - Owners' understanding was that NNI supported GSC dates above and no expediting was required at the time
  - **E&DCRs were an issue for NNI from the onset and eventually led to a change order.**

**Module Delay (Jun 2013) Projected SCDs: Dec 2017 - Mar 2018 / Dec 2018 – Mar 2019**

- At the Presidents' Meeting (Dec 2013) – Jeff Benjamin announced the need for a Rebaselined Schedule. A definition for “engineering complete” had recently been established at Westinghouse and engineering was to be completed as follows:
 

○ Civil / Structural	Jan 2014
○ Piping	Feb 2014
○ Mechanical	<b>xxx</b>
○ Electrical	<b>xxx</b>
○ I&C	<b>xxx</b>
○ Simulator	<b>xxx</b>
- **In Jan 2015, WEC recommitted to achieving the “engineering complete” milestone by Apr 30, 2015. However, WEC began describing “engineering complete” as the issuance of all Rev 0 drawings.**

## CEO Meeting Talking Points – May 14, 2015

- Recently, SCE&G has made (at least) one trip to Cranberry to get a better understanding of the status of the engineering. The results of this trip were **XXX**.
- On Apr 30, 2015, WEC claimed that the issuance of all Rev 0 drawings was achieved except for the following excluded items:
  - Non-NI design (e.g., Annex Building, Turbine Building, Site Specific Design)
  - NI Auxiliary Building electrical raceway design above 100' elevation driven by Shaw Cable Manager input
  - NI Auxiliary Building roof design driven by major equipment vendor input

### **Rebaselined Schedule (Aug 2014)      Projected SCDs: Dec 2018 - Jun 2019 / Dec 2019 – Jun 2020**

- Lake Charles was de-scoped in 2014.
- Four new vendors were added to the submodule supply chain.
- Following is a status of each submodule vendor.
  - Oregon Iron Works (OIW) – Unit 3 CA20– scope 13 of 72 submodules
    - **All 13 submodules are late.**
      - OIW has received over 1000 E&DCRs
      - 1 of 13 submodules has now been received
    - **CA20 is clearly still being designed.**
  - Lake Charles – scope: Unit 3 CA20 – 59 of 72 submodules
    - **17 of 59 submodules received (16 of 17 late)**
    - **Jun 2020 Schedule**
      - **CA20 hook date = Sep 2015**
        - **No longer achievable**



CEO Meeting Talking Points – May 14, 2015

- **CA20 hook milestone currently tracking to Feb 2016**
- SMCI – scope: CA03 (both units) – 34 submodules (17 per unit)
  - **Feb 5, 2015 trip to Florida, SMCI disclosed that the volume of E&DCRs received to date has significantly impacted its delivery schedule.**
    - **SMCI has received over xxx E&DCRs**
  - **In addition to E&DCRs, SMCI has had other significant procedural type issues that has resulted in self-imposed Stop Work Orders**
    - **CB&I is now contemplating bringing some of the SMCI work back to Lake Charles**
  - **To date, only 2 of 34 CA03 submodules have been delivered.**
    - **All Unit 2 submodules are past due.**
  - **Unit 2 Jun 2019 Schedule**
    - **CA03 hook date = Oct 2015**
      - **No longer achievable**
    - **CA03 hook milestone tracking to Jan 2016**
  - **Unit 3 Jun 2020 Schedule**
    - **CA03 hook date = May 2016**
      - **No longer achievable**
    - **CA03 hook milestone tracking to Nov 2016**
- Toshiba – scope: Unit 3 CA01 – 22 of 47 submodules
  - **To date, Toshiba has received over xxx E&DCRs.**
    - **Over xxx E&DCRs have impacted the Toshiba schedule.**

CEO Meeting Talking Points – May 14, 2015

- **Toshiba hopes to deliver all contracted submodules by Mar 2016.**
- **CB&I currently working on a recovery plan to get all submodules on site by Dec 2015.**
- IHI – scope: Unit 3 CA01 – 25 of 47 submodules
  - **To date, IHI has received over 900 E&DCRs.**
    - **Over 100 E&DCRs have impacted the IHI schedule.**
    - **IHI hopes to deliver all contracted submodules by Jun 2016.**
  - **CB&I currently working on a recovery plan to get all submodules on site by Dec 2015.**
  - **Jun 2020 Schedule**
    - **CA01 hook date = Feb 2016**
      - **No longer achievable**
  - **CA01 hook milestone tracking to Jun 2016**

**Rebaselined Schedule (recent news)****Projected SCDs: Jun 2019 / Jun 2020**

- In Jan 2015 ... the Consortium acknowledged that the Dec 2018 / Dec 2019 dates were not achievable.
- The Owners further learned that the Jun 2019 / Jun 2020 dates contained less risk but would require expediting certain shield building panels as follows:
  - Unit 2 – 3 months expediting required
  - Unit 3 - 5 months expediting required

## CEO Meeting Talking Points – May 14, 2015

- NNI – scope: Shield Building Panels (both units) – 334 panels (167 per unit)
  - **\$20M CO – has been issued to CB&I for design changes**
    - **CB&I paid \$10M in good faith to keep work going**
  - **CB&I / WEC – currently in arbitration over dispute**
    - **CB&I is projected to hit hard dollar ceiling Jan 2016 ... at which time work may stop**
  - **CB&I / NNI – currently renegotiating T&M contract to allow work to continue.**
- As of May 2015 ... E&DCRs continue to impede schedule performance at all submodule fabrication sites ... as well as on site with vertical construction on the Nuclear Islands.
  - The consortium continues to fail on executing critical path work.
    - Two self-imposed stop work actions were required because of lack of work control in the containment vessel.
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## CEO Meeting Talking Points – May 14, 2015

- Late identification of the use of the incorrect code year for welded rebar couplers resulted in a purposed violation at plant Vogtle and stopped all current concrete pours at VCS. The code year used to design the coupler weld is different than the code year referenced in the Licensee basis document.
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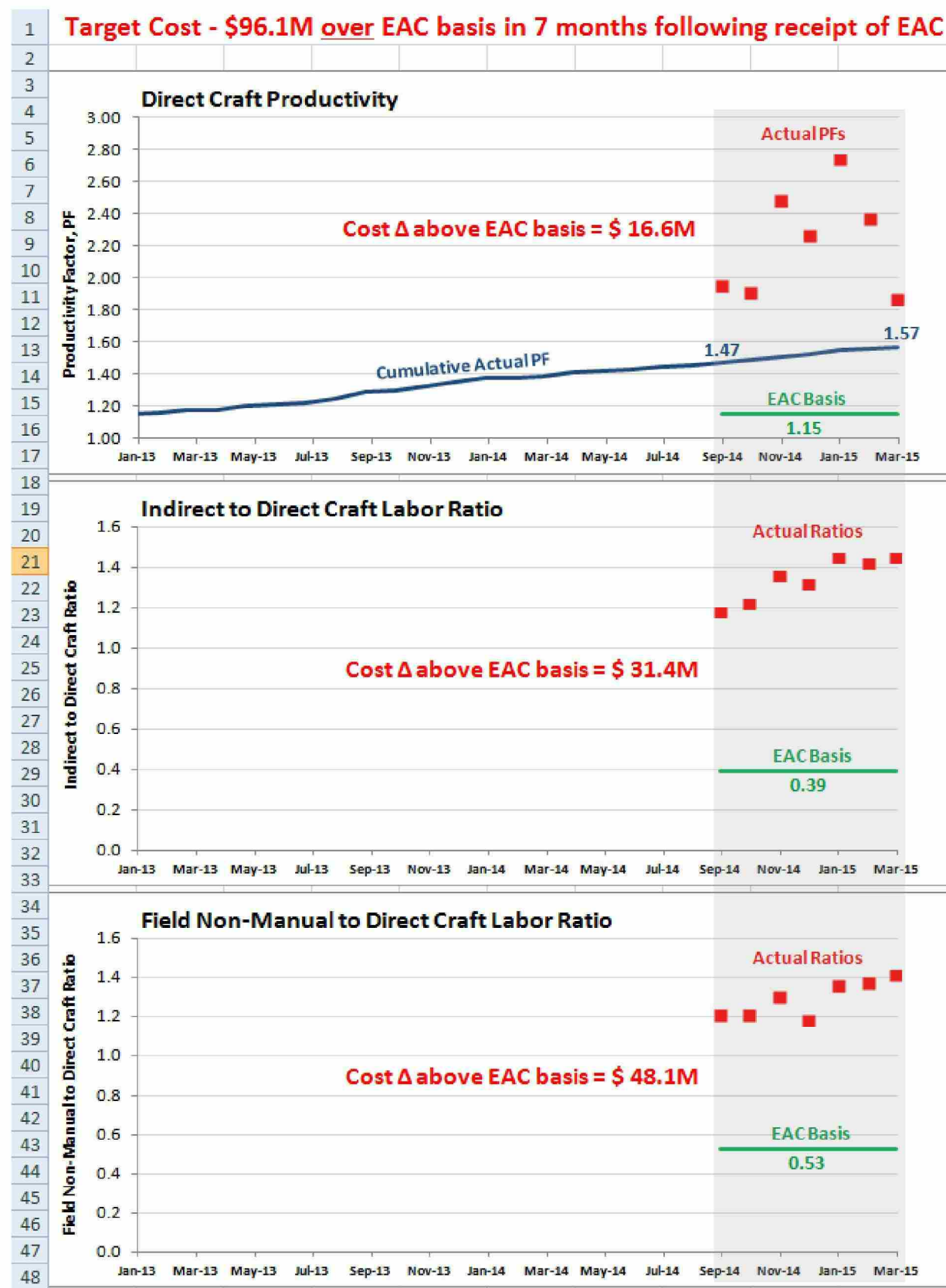
## CUMULATIVE IMPACT ON COST

- Craft productivity continues to be an issue
  - **The cumulative direct craft productivity factor (PF) has gotten worse every month for the past two years.**
  - In the Aug 29 EAC Meeting, the Owner was led to believe that the consortium expected to improve productivity as additional work fronts opened up over the next 6-month period (i.e., to ramp the PF down closer to the 1.15 used as the EAC basis). **As opposed to ramping down from the 1.47 last August, the cumulative PF has gotten worse every single month since August and is now 1.58.**
  - As a result, the consortium has and continues to struggle with completion of direct craft work.
    - **In the last 2 years, less than 8% of direct work has been completed.**
    - **And despite the negative trend in craft productivity, in the next 4-1/2 years, 84% will need to be completed to meet the Jun 2019/Jun 2020 SCDs**
- Now, with the uncertainty with respect to fabrication of shield building components, the Owner has no confidence in the consortium's ability to complete Unit 3 by the end of 2020 and suspects that production tax credits are in jeopardy for that unit.

## CEO Meeting Talking Points – May 14, 2015

- The continued failure to meet schedule (Unit 2 now at least 39 months late, and Unit 3 at least 18 months late, relative to the original BLRA dates, with significant mitigation required) has severely impacted credibility and has placed ongoing regulatory and financial support in jeopardy.
- **Cost Concerns**
  - Consortium has no credibility for developing a realistic cost estimate
    - Target Cost (Since receipt of EAC Aug 29, 2014)
      - Direct Craft Productivity Factor has averaged 2.23 vs. the EAC basis of 1.15 resulting in **\$16.6 million** in additional costs to the Owner.
      - The consortium has indicated and it is apparent that unit rates affecting earned work were bad estimates; therefore, we believe the EAC is significantly understated.
      - Indirect to Direct Craft Labor Ratio has averaged 1.34 vs. the EAC basis of 0.39 resulting in **\$31.4 million** in additional costs to the Owner.
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      - The total additional costs over the EAC are **\$96.1 million** in the seven months since we received the EAC.
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# CEO Meeting Talking Points – May 14, 2015





## CEO Meeting Talking Points – May 14, 2015

